GIS Becomes a New Method for Floodplain Management in Kinston

Full Mitigation Best Practice Story

Lenoir County, North Carolina

Kinston, NC - In 1999, Hurricane Floyd had decreased in strength to a Category 2 hurricane before reaching North Carolina's coast; but the City of Kinston was still devastated by severe flooding. More than 75 percent of the homes located in floodplains in Lenoir County were substantially damaged and /or repeatedly flooded following the remaining storms that year: Hurricanes Fran and Dennis.

The City then made a commitment to consciously reduce their risks and proactively incorporate floodplain management planning into their community. Using Geographic Information Systems (GIS) as the technical foundation for their floodplain management planning, local officials developed and utilized relevant databases and tracking functions to produce graphical images to aid in planning, implementing, and tracking a comprehensive floodplain management program.

The City of Kinston updates the GIS data regularly and uses such information for effective project planning and management. For example, GIS is used in the various stages of pre-disaster planning, risk reduction, disaster response and recovery.

The City of Kinston Fire Department is an example of GIS use for emergency response. Each fire emergency response vehicle is equipped with a laptop computer containing the most recent GIS data for properties in the community, including homes and businesses located in the floodplain. If a unit is called to a flooded home to rescue the residents, the emergency responder can access critical pieces of information, such as how many people reside at the house or if any of the residents are handicapped and will require special assistance.

Hazard Mitigation Grant Program (HMGP) Acquisition and Management Local officials used GIS to graphically illustrate the 100- and 500-year floodplains and the HMGP acquired lots to help local officials illustrate the benefits of proactive floodplain management and to plan for future acquisitions.

Because HMGP acquisitions are voluntary, residents must be interested in participating and must also understand the implications of their decisions. By using GIS as an educational and marketing tool to illustrate the acquisition plans and benefits, local officials were able to generate community support. Ninety-seven percent of the homeowners in acquired homes relocated to housing in the City of Kinston, resulting in minimal impact to the tax base.

A requirement of FEMA's HMGP is that the purchased property must be maintained as open space. Viewing this requirement as an opportunity, the City of Kinston, in partnership with the Conservation Fund and the University of North Carolina at Chapel Hill Graduate Student Workshop, developed a green infrastructure plan that redevelops areas as open spaces that create amenities and services to benefit the overall community.

When planning mitigation strategies, communities must address a number of political, emotional, economical, and logistical issues. The City of Kinston took a holistic and inclusive approach to making and implementing decisions. GIS technology provides integral documentation, planning, and educational and marketing tools to produce, implement, and track a comprehensive floodplain mitigation plan that addresses both the community's needs and mitigation goals.

Activity/Project Location

Geographical Area: **Single County in a State**

FEMA Region: **Region IV**

State: **North Carolina**

County: **Lenoir County**

City/Community: **Kinston**

Key Activity/Project Information

Sector: **Public**

Hazard Type: **Flooding**

Activity/Project Type: **Land Use/Planning; Floodplain Management**

Activity/Project Start Date: **05/1999**

Activity/Project End Date: **Ongoing**

Funding Source: **Hazard Mitigation Grant Program (HMGP)**

Funding Recipient: **Local Government**

Funding Recipient Name: **City of Kinston, Lenoir County**

Activity/Project Economic Analysis

Cost: **$40,000,000.00 (Estimated)**

Activity/Project Disaster Information

Mitigation Resulted From Federal Disaster? **Unknown**

Value Tested By Disaster? **Unknown**

Repetitive Loss Property? **Unknown**

Reference URLs

Reference URL 1: **http://www.fema.gov/plan/prevent/floodplain/index.shtm**

Reference URL 2: **http://www.fema.gov/about/divisions/mitigation/mitigation.shtm**

Main Points

- Using Geographic Information Systems (GIS) as the technical foundation for their floodplain management planning, local officials developed and utilized relevant databases and tracking functions to produce graphical images to aid in planning, implementing, and tracking a comprehensive floodplain management program.
- The City of Kinston updates the GIS data regularly and uses such information for effective project planning and management. For example, GIS is used in the various stages of pre-disaster planning, risk reduction, disaster response and recovery.
- The City of Kinston Fire Department is an example of GIS use for emergency response.